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ABSTRACT

Four papers addressing the future of information and changes brought on due to the Internet include: "Internet and the Future of Collection Development: A Teacher Librarian's Perspective" (Jill Johnson); "The Provision of Information Services in Networked Schools" (Eric Wainwright); "When the Book? When the Net?" (Jamieson McKenzie); and "Death of the Book?" (Lynn Linning) The first paper discusses changes in the collection and in collection development in school libraries brought on by the Internet, as well as the shifting role of the teacher librarian. The second paper provides an overview of the present state of information networking in Australian schools, future developments, and opportunities and issues for schools presented by access to information through global networks. In the third paper, weaknesses of conducting research on the Internet are pointed out and benefits of printed books, electronic books, and CD-ROMs are described. The fourth paper examines the future state of the printed book. (AEF)

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TOPIC J

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INTERNET AND THE FUTURE OF COLLECTION DEVELOPMENT: A TEACHER LIBRARIANS' PERSPECTIVE

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The arrival of on-line information in schools, in particular the Internet, allows students to access the vast store of constantly changing information on the World Wide Web. This changes the whole concept of the 'collection' in a school library and has implications for its size, focus, currency and reliability. In order to promote discussion on this issue I would like to raise some questions, few to which I have the answer. Will the collection, as we presently understand it, exist in the library resource centre of the future? Will teacher librarians actively develop a collection or will we monitor and bookmark the ever changing sources of the Internet? What change does this imply for our professional role?

In *Learning for the Future* (1993:22), it is recommended that 'resources encompass a variety of media and information formats including...electronic resources'. Quantitative and qualitative standards are provided to guide teacher librarians in their selection. However, in the resource centre of the future, information formats may be overwhelmingly electronic and collection development strategies based on a range of media no longer relevant.

Traditionally, collection development has been guided by a collection development policy which provides strategies for analysing the weaknesses and strengths of the collection and a set of selection criteria by which the staff, usually under the guidance of the teacher librarian, can evaluate resources for inclusion in the collection. The ultimate aim of collection development is to provide a collection which supports the school philosophy and curriculum objectives and maximises students' opportunities for learning. Implicit in this is the understanding that resources selected will be reliable, accurate, relevant and accessible. This gives the teacher librarian considerable control over the items which are placed in the collection and is a major professional responsibility. Will the freedom and fluidity which characterises the Internet make it impossible for us to do this?

Collection development policy may be used to 'protect' our students from inappropriate materials or alternatively to justify the inclusion of materials which may be open to challenge. Items will sometimes be selected which may be seen as controversial to provide several points of view, although the extent to which this occurs is at the discretion of the teacher librarian with understanding of the needs, age and ability of the students. With the advent of Internet the practice of 'protecting' our students from inappropriate materials becomes much more difficult, some say impossible. At the present with access available through only one or two terminals it may be possible to overview students' searches, however once Internet access becomes networked this will become more difficult and control will depend on 'acceptable use' policies and agreements between staff, parents and students.

The role of the teacher librarian as 'gatekeeper' and 'protector' will become increasingly difficult to sustain. Access to Internet will force school communities and in particular teacher librarians to modify their use of collection development criteria as a tool for censorship. For example, few teacher librarians would select resources espousing that the holocaust did not occur or was greatly exaggerated. However a search of the Internet will take students to a number of documents which support this point of view as well as documents refuting this.

Material on the Internet may not only be unreliable or biased, it may also be inaccurate or presented at a totally inappropriate level. For example a search for planets may find documents produced by reputable authorities such as NASA or documents produced by Year 8 high school students. Similarly, documents may be aimed at school students or professionals in the field.

Opening our collections to this enormous range of materials both in terms of level and reliability will force a change in our view of collection development. What are the implications if we can no longer rely on the collection development policy to ensure that the resources needed for the assignment are appropriate or even acceptable? The Internet undoubtedly makes the locating of information easy for our students. However it becomes increasingly important that our students develop skills in assessing bias, verifying information and overcome their tendency to rely on one or two sources of information. Our professional responsibility for the collection moves from ensuring that the

collection is appropriate to our students needs to ensuring that our students know how to collect information appropriate for their needs.

Internet also changes the need for a static collection of resources of a particular size to serve a school population. For example, according to *Learning for the Future*, a school library resource centre with 1200 students should have 19061 items in its collection. However, these figures bear little relationship to the actual amount of information our students can access via the Internet. The size of a collection can no longer be measured solely in terms of numbers of items, but must include the number of Internet access points and their availability for student use. This has major budgetary implications; with a gradual move away from expenditure on print and other resources to expenditure on providing on-line services.

The currency of information available on the Internet will be another factor reinforcing this trend. In a senior school (Year 11-12) collection, the need to have current information in subjects such as economics, business management and legal studies has always been a drain on the budget. With the advent of sites such as the ***Australian Legal Information Index*** **<http://www.spirit.net.au/~dan/law/>** and the ability to download budget papers and other government documents from the Internet, this pressure is reduced.

Similarly, our film studies students appreciate the ***Internet Movie Database*** **<http://ballet.cit.gu.edu.au>** which provides them with a range of reviews of the latest films as well as technical, cast and production details. Students are now able to access current information which is not only continuously updated but does not disappear from the library when one student borrows it.

Similarly, as more magazines and newspapers go on-line the need to purchase hard copies of these will decline. The Internet will eventually provide access to current editions while the availability of CD ROM versions will meet the needs for archived copies. Few teacher librarians would be sorry to see their tattered and depleted ranks of *Bulletin* or *Time* replaced by on-line or CD ROM access to these same magazines.

The Internet is also invaluable in locating information on unusual topics or those which have not generally been a focus of collection development. For example, while our collection does not contain much information on how to build a worm farm, at **<http://www.nj.com/yucky/worm/recyclers/bins.html>** we located comprehensive details on how to construct one, what kind of worms to use, what to feed them and even an address to send away for worms. We can rely on the Internet to provide for such requests and target expenditure on areas of high demand or in providing more on-line access points.

In our library, print material will continue to provide a focus for research for the immediate future. However, for currency, range of opinion and those 'odd' requests that you never expected, the Internet will become an increasingly useful tool. Collection development will be shaped by this trend. As we gradually move our emphasis to electronic sources of information, expenditure will be diverted from 'current' and ephemeral material to provide for the infrastructure and costs of on-line searching.

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THE PROVISION OF INFORMATION SERVICES IN NETWORKED SCHOOLS

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AIM

The aim of this paper is to provide an overview of the present state of information networking in Australian schools, its likely realistic development in the near future, and to examine some of the opportunities and issues for schools presented by access to information through global networks.

INTRODUCTION

During 1994 and 1995 it may be said that both the Commonwealth and State Governments began for the first time to take seriously the issues relating to the "national information infrastructure" and the ramifications of major developments in the telecommunications, computer and broadcasting industries. By national information infrastructure, I mean the combination of public and private networks that connects people with people and people with information.

There is little doubt that this flurry of activity was prompted partly by the increased media hype about developments in the United States following the election of the Clinton/Gore administration, and the early concentration of that administration on 're-engineering the United States public service through the use of information technology', together with the growth of the Internet in North America to critical mass which has started to impact on all kinds of organisations.

In a similar way, the former Australian Prime Minister was taken with enthusiasm about information networking, in part through meetings with people like Bill Gates, the Chief Executive of Microsoft. This linked to the former Prime Minister's already evident interests in the promotion of Australian culture and the possibilities for an information technology driven spread of that cultural development through multimedia production and distribution, which had a heavy influence on the Governments' cultural policy statement 'Creative Nation' released in October 1994; as did the strong believe in some government departments that multimedia and information technology represented two future major industry development issues. This stream of thinking, in particular the industry development possibilities, has also influenced some State governments heavily, particularly Victoria where the Premier has given multimedia and communications a high profile in government policy, established an Office of Communications and Multimedia, and created probably the world's first Minister for Multimedia. Whatever the reasons, the number of government enquiries and reports relating to communications and networking over the past two years has been quite extraordinary (see Appendix A).

This indicates not only the high level of government and parliamentary interest in the communication and information services and technology issues, but also the complexity of problems caused by the spread of information technology and the convergence of communication technologies and delivery mechanisms. The move to networking of schools must therefore be seen in the broader national context. The planning for this has spawned a complicated network of bodies within the Commonwealth government, which is expected to look like Appendix B in the near future. While the policies of the new government in relation to communications and networking have yet to fully emerge in detail, it seems likely, given the Coalition's pre-election policy statement 'Australia Online' that the new government if anything will speed up developments which lead to improved access to online services. The replacement of the National Information Services Council by a more active and better resourced Information Policy Task Force also implies a higher degree of public input into policy making in this area. Initiatives of the former government, such as the Accessing Australia program, which will link all public libraries to the Internet, due to come on stream in 1996-1997, seem likely to continue.

In relation to schools there have been significant developments at State level, tied in with commitments given in recent election campaigns. But with so many State governments so recently elected, it remains unclear how fast in practice schools networking will be pushed forward in each State. High hopes were of course raised by the establishment in 1995 of Education Network Australia (EdNA) as a joint Commonwealth/States initiative. However, it is fair to say that there is now uncertainty, or even possibly concern, about the real impact of EdNA at the grass roots level. According to the latest (21 March 1996) update **<http://www.deet.gov.au/edna/ednaup1/htm>** on the establishment of EdNA:

> It is not possible to predict a final form for EdNA as it will continue to evolve as both the technological capabilities expand and as the education sector develops new ways of utilising and exploiting the possibilities of information technology. It is clear, however, that EdNA will encourage and facilitate the use of technology in many ways.

EdNA's web presence is in effect the first prototype of an Australian subject-based collaborative government entry point to the Internet, and may well be taken up as a model for other subject/function entry points by other Commonwealth Government departments (together with State departments where responsibilities overlap, such as in health or business development). This strategy is currently under detailed investigation by the government's Information Management Steering Committee. It is possible that the EdNA entry/directory structure will develop, given enough resources and skills, to provide an excellent starting point for those in schools seeking resources for educational purposes, whether for direct classroom use or by students engaged in more resource intensive projects, as well as for a variety of administrative purposes. But already, there is a wealth of excellent educational material available freely over the Internet (although still not a very large volume of Australian material), and a number of relatively good home page entry points aimed at children and schools-level education, including:

- ***The Global SchoolNet Foundation*** **<http://www.gsn.org/>**
- ***EduLink Learning Resource Server*** **<http://www.uiuc.edu/LRS/>**
- ***OzKids*** **<http://www.gil.com/ozkidz/>**

Ongoing notification of new projects and resources can also be easily obtained through such services as:

- ***InfoList for teachers*** **<http://www.electriciti.com/~rlakin>**
- ***Oz TeacherNet*** **<http://owl.qut.edu.au/oz-teachernet/>**

In practice, while the EdNA web pages may well be a very valuable source for Australian educational materials, and perhaps also act as a catalyst to encourage educational authorities and individual schools to match their more advanced colleagues by providing resources which are visible through EdNA, in practice it is likely that each school will have its own home pages through which the entry to the Internet resources is tailored to reflect the particular curriculum and other interests of that school, and also provides pointers to locally created material.

In practical terms, the state of play seems to be that:

1. An EdNA directory is available in pilot form, a committee is working on a more detailed directory design, and the project is being supported through the Open Learning Technology Corporation (OLTC). The extent to which the directory grows will be highly dependent on input from the education community.

2. Proposals from telecommunication suppliers for provision of national educational communication facilities, priced appropriately for the education sector, are under current consideration by the Department of Education, Employment, Training and Youth Affairs (DEETYA).

3. A contract to purchase desktop and laptop computers under a large volume pricing agreement negotiated nationally is expected to be available in April 1996, offering discount purchasing for schools.

4. OLTC as the governing body of EdNA, will have ongoing responsibility for further development of EdNA under the general oversight of the Commonwealth State and Territories Ministers for Education, Employment, Training and Youth Affairs.

EdNA may yet act as a catalyst to speed up the rollout of at least one point of network access in all public schools over the next three years, and there is every likelihood that with some assistance of the common carriers, EdNA will enable reasonable ongoing costs for Internet use by schools, although that remains to be seen. But funding for schools networking is going to have to come largely from the education departments of the States and Territories, supplemented by the efforts of the school themselves, together with the efforts of parents and other sources of extra school funding. As those of us who have some years of experience of networking in libraries know only too well, the costs of network services only begin when the first machine is connected to the network.

Throughout this conference [ITEC Electronic Networking and Australasia's Schools, April 1996], there are many descriptions of schools that are beginning to provide network access and network service in a variety of ways and a number of interesting and innovative projects. But how realistic is it to expect a significant use of networked information services in most schools in a short to medium term? In my view, any serious use of networked information services in a school would require:

- a school local area network (LAN) linking the library, or classrooms and laboratories, teachers offices and staffrooms;
- a reasonable bandwidth link between the school LAN and the nearest Internet point of presence;
- adequate funds to allow widespread Internet connection;
- a LAN within the library, allowing networked use of CDROMs through an array of PC's/MAC's and multi-disk CD towers; and
- adequate staff for both technical and resource content (Internet and CDROM) assistance and support.

An ideal situation would of course extend well beyond this, with every student position in each classroom wired to enable both desktop and laptop computers to be used by all students in a class, with a screen sharing and control system which allows online teacher monitoring and interaction with individual students (such equipment is now available, eg. the TECH Commander).

Even in the most well-resourced of our universities, with traditional library resources vastly greater than in any school, the access to networked resources for many students is still extremely limited, students often contending for small numbers of workstations in libraries and other network access sites around the campus. How much longer then will it be before any sizeable number of our schools approach the infrastructure investments needed for widespread use by school students and teachers? This is not to say that a few schools may not be able to move very fast, particularly when new schools are being established - the new Lanyon High School in the ACT, for example, has all classrooms linked across a LAN, with a further, albeit as yet limited, link to the Internet (Patulny 1996).

A major issue is then what strategies might be developed to ensure the optimum roll out of networking facilities in schools. This is not simply a question of Federal and State resources. This problem is the focus of the National Schools Test Bed Project in the United States, which has recently moved into its second phase located at **<http://copernicus.bbn.com/testbed2>**. The National Schools Test Bed Project, which involves 250 institutions, is asking the following question:

> **Can we construct and manage communication networks and information services to support educational innovation on a local level in such a way that tax payers, governments, and private industry will view their benefits and cost effectiveness as warranting the investment needed to support them on a large scale?**

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This approach results from the conclusion from the first stage of the project that "...community groups will make the investment required to build the local information infrastructure when they understand and benefit from the infrastructure". This community includes local government, other schools, public libraries and the local business community.

Another major barrier to faster action is lack of skills in establishing facilities at the school level. Fortunately there is now available (but mostly only through the Internet) useful material to assist with this process, eg. the guide for schools available through United States Kickstart Initiative, which is a project to help raise funds that will allow schools to get online, "connecting K-12 schools to the information superhighway" **<http://www.niaac/info.org/~niiac/>**. While United States in origin, this provides the most useful check list for action.

But the simple provision of adequate networked connections and workstations in itself changes nothing. What is needed is understanding of the significance of Internet access for schools and for existing libraries. Schools have been, and still are relatively impoverished information environments. To quote Williams and Bigum (1994) "...classrooms may become spaces which are .... media-free" in competition with the resources immediately available in homes and workplaces through radio, television and the burgeoning range of Internet based communications. Even at the present very early stage of development of Internet materials for educational purposes, a school is now capable of moving overnight from an information poor to an information rich environment. The range of useful educational materials and the communication linkages with others involved in school education is already vast and doubling every few months.

Given adequate network connections, an Internet terminal in a school can immediately become the major channel of potentially useful material, dwarfing the other information resources of any school. It also immediately provides teachers and educational administrators with an enormously powerful professional development tool, enabling them to communicate with others working in the same curriculum areas and ranges of interest. Already there is a strong development of discussion groups and conferences aimed at school educators, both in Australia and overseas (see for example Williams and McKeown 1995). The major question is then how this potential can be harnessed in the existing and new school environment. The answers to this question seem to me complicated and may not yet be known, given the extremely limited experience in schools.

On the one hand, we now have (very nearly) at our disposal a technology which can provide access equally to schools wherever in the country they are situated (ie. the standard of their facilities for information access is now potentially geographically independent) to:

- the most current administrative information available from education departments and other centralised schools - support agencies
- the most current ideas and recommendations on curriculum development from curriculum developments centers and from other schools
- links to the resources of a vast range of libraries (including the national libraries of most countries, including Australia, plus state and university libraries throughout Australia)
- discussion lists, newsgroups and computer conferences on a vast array of topics of interest to education
- communication for teachers and students by electronic mail, within shared information spaces, and by videoconference with a very large number of other colleagues in other schools throughout the world, facilitating cross-cultural exchange of ideas and shared projects
- significant amounts of often freely available texts, images and sound-clips directly useable for classroom illustration, and for inclusion into student projects
- the ability to promote themselves in their community and other places by providing a medium for publishing materials about the school, contact information, and showcasing of the work of students.

With the development of the World-Wide-Web, and its relatively intuitive interface and hypertext links to a very large amount of material, it is for the first time possible for relatively untrained users to use network resources, although there is still no full integration between web resources and electronic mail facilities. This raises real issues in relation to the role of intermediaries such as teachers, and in particular for teacher librarians, librarians and computer support personnel, all of whom have performed analysis and synthesis roles in assisting clients to obtain needed materials, whether in print or electronic form.

In the case of teacher librarians, a key task has been to link to the curriculum and forward planning of information sources that will be needed to support curriculum objectives, and then to provide effective access to appropriate materials at the time they are needed, by both teachers in course preparation, and by students in producing assigned tasks, whether as individuals or in groups. The librarians' traditional role has essentially been in filling the gaps between the production of materials and the time and place at which they are later needed.

These roles seem to me to be as valid as ever in a networked environment. But the ways in which they should be performed will need to be very different. The school is now faced with the creation of an infrastructure which will facilitate very widespread access to and interaction with a very much larger universe of material and other facilities for learning -- documents, databases and people, in a way that the functionality requirements can be delivered through a single channel -- the workstation. This requires a degree of collaboration which is unusual in many schools, and reconceptualism of roles for many staff.

It is my view that the school library in its traditional form is doomed. Locally held resources will not be able to compete with the wealth available at very low cost and convenience through the electronic networks. It is in the interest of creators, schools, governments, telecommunications carriers and even traditional publishers for this to be so. An encyclopaedia publisher for example will make far more money by charging a few cents for millions of people to download an electronic encyclopaedia then selling perhaps a thousand copies in print or in CDROM.

The network of course offers much more than information. While librarians tend to talk about the Internet as an information source, academics and teachers concentrate on its value as a communication device. The Internet offers access to:

- People
- Equipment
- Software
- Data
- Texts
- Multi-media Objects
- Retrieval Devices.

What we are seeing in the Internet is emerging electronic capabilities which on the one hand have grown up through the handling of text on the Internet and on the other through the broadcasting media. Some of these are illustrated below:

TEXT

- E-journals
- Digest/article links
- Listservs
- Newsgroups
- E-mail
- Interactive relay chat
- MUDs/MOOs

MEDIA

- Broadcast
- Narrowcast
- Multicast
- Audiographics

- Audioconference
- Videoconference
- Virtual realities
- Collaboratories
- Shared Design Spaces

In this rapidly expanding milieu, roles of all of those involved in the creation and transmission process need to be reconceptualised. In his wonderful book *Information Anxiety*, Wurman argues that all of us in these areas need to rethink our roles as being part of an "Information understanding business", ie. a service which makes data and information useful, applicable and approachable. In this situation, if there is a role at all for a school library, it will be through teacher librarians and others re-creating that library as primarily a gateway to the world's resources, rather than a local service relating to a small number of locally available resources. An effective gateway service requires it to be:

- A 'one-stop shop' - School
  - Local
  - Global
- For all forms of information - Print
  - Multi-media
  - Electronic
- User-friendly
- Powerful
- Based on international standards
- Pervasive in the school

Clearly the roles for the new librarian in such a service will include those of:

- guide
- navigator
- interface constructor

- and perhaps, coordinator of publishing and promotion for the school.

But if the gateway is indeed pervasive throughout a school, ie. access to it can be at any point in a classroom, office, staff common room as well as the library, this is likely to mean a reconceptualisation also of the role of the teacher. If there is one form of education that has had a long survival history, it is the concept of the single teacher to group of students classroom approach. But it may be reasonable to argue that in a resource rich environment, such teachers roles must change.

David Penniman has argued that the future will belong to those who take the bold steps necessary to redesign our institutions and methods of operating. Why would we wish to confine the teaching/learning process primarily to a limited number of interfaces between a single teacher (as a relatively poor single "knowledge source") and a class, and between individual students and the very limited resources of textbooks and the typical school library/media centre? In practice students augment these sources by sharing knowledge amongst themselves but once again the Internet offers the potential for students from a much greater diversity of backgrounds to share in this way.

The Internet offers a richness of texts, multimedia and people as interactive resources which can transcend traditional school limitations. Andy Carvin (1995), in a very useful set of articles on the EdWeb site on the role of the world wide web in curricular reform, argues that the WWW has four basic roles:

- tutor
- publishing house
- forum for discussion
- navigator to information.

There are now a very wide range of network-based activities involving schools, and a very useful taxonomy has been developed by Judy Harris (1995) in a series of articles in the *Computing Teacher*. She groups networked based educational activities into three broad groups:

- ***Collaborative problem solving projects.***

These include electronic process writing, information searches, parallel problem solving in different geographical locations, sequential creations by different students, and simulations such as virtual worlds, social action projects and virtual gatherings.

- ***Information collections.***

These projects include database creations, electronic publishing, information exchanges, pooled data analysis and tele-field trips.

- ***Interpersonal exchanges.***

These include electronic appearances to many schools simultaneously, electronic mentoring by experts, global classrooms studying common topics, impersonations involving characterisation, electronic mail keypals, and question and answer services.

But while there are very many projects underway currently the real question is how learning is advanced, and there is a strong need for evaluation of the substantial existing effort going into projects. There are also many opportunities for professional development emerging on the Internet, and one Australian recent development is the OzeKids project developed by the Sunrise Research Laboratory at the Royal Melbourne Institute of Technology. This is a CDROM providing professional development materials for teachers linked to illustrations of resources available on the Net (including some from the National Library of Australia), and envisages linkages of local resources through the CDROM to the Internet.

Clearly remoteness is no longer a barrier to any school once connected to the Internet. But can we actually create an Internet rich environment in practice in the medium term? James Levin (1995) has recently reviewed educational networking interactions, and argues that their success for learning depends on five factors:

1. structure, ie. the definition of clear goals and appropriate technology for their achievement;
2. process, ie. clear timelines and feasible phasing of projects;
3. mediation, ie. leadership by skilled coordinators and facilitators;
4. community building, ie. developing the spirit of community for distributed projects; and
5. institutional support, at highest levels for the organisational changes that may be required.

I agree, but I believe that there are still many barriers to progress if we are to embed the intent of what library/media centres have been all about into a pervasive embodiment in the teaching/learning process. Information isn't a value in itself -- it is the learning and actions that follow that are important. Key barriers to rapid development in schools still include:

- Understanding the potential of the network
- Understanding how networked resources can be integrated into the teaching/learning process
- Teacher skills/motivation
- Student skills
- Resources
- Lack of effective collaborative mechanisms.

Effective collaborative mechanisms need to exist within the school, between schools, as the ACTEIN pilot developments have shown, between schools and resource services, such as major libraries, and between schools and their local communities. We are therefore talking about major efforts sustained

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over several years. This is an immense task, but schools are not alone -- all of those of us in the information understanding business are parts of the solution. One of the messages I have learned in using the Internet every day over recent years is how willing people are to share and to help when the costs are low enough as they now are. We can and must work together -- certainly I can commit the National Library of Australia to help with this task.

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APPENDIX A: RECENT/CURRENT AUSTRALIAN INQUIRIES

General Plans

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ASTEC. (1995). *Australia's Science and Engineering base for Development of Australia's Information and Communications Services and Technologies.* Report released December 1995.

ASTEC. (1994). Study of Australia's Requirements for Research Data Networks. *The Networked Nation.* Report released October 1994.

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DCA. (1995). *Information and Communications Services and Technologies.* National Strategy Statement, 5 December 1995.

DSS. (1995). *Request for Information : National Community Information Network.* Released July 1995.

House of Representatives Standing Committee for Long Term Strategies. (1995). *The Workforce of the Future.* Report released June 1995.
Industry Commission. (1995). *Computer Hardware Software.* Final report released September 1995.

National Board of Employment, Education and Training (NBEET) Employment and Skills Formation Council. (1995). *Converging Technology Work and Learning.* Report released November 1995.

Content Issues

Attorney-General and Minister for Communications and the Arts. (1995). *Consultation on the regulation of online information services.* Issues Paper issued July 1995.
Australian Broadcasting Authority. (1995). *Investigation into the content of online services.* Issues Paper released December 1995; Final report expected mid-1996.

Copyright Convergence Group. (1994). *Highways to Change: Copyright in the New Communications Environment.* Report released August 1994.

Copyright Law Review Committee. (1996). *Inquiry into the Copyright Act.* Issues Paper to be released early 1996; Report relating to Categories of Protected Subject Matters expected February 1996, Final Report by November 1997.

National Board for Employment, Education and Training (NBEET) Schools Council. (1996). *Management of Student Access to Controversial material on the Internet.* Report expected April 1996.

Senate Select Committee on Community Standards Relevant to the Supply of Services using Electronic Technologies. (1995). *Report on regulation of computer online services.* Part 1, September 1995; Part 2, November 1995.

Government Services

DAS. (1995). *Electronic Commerce: Commonwealth Government Statement of Direction.* Report released April 1995.

Information Technology Review Group. (1995). *Clients First: The Challenge for Government Information Technology.* Report released March 1995.

Office of Government Information Technology. (1996). *Framework and Strategies for Information Technology in the Commonwealth of Australia.* Public draft released January 1996.

Multimedia/Open Learning. (1994). *Creative Nation: Commonwealth Cultural Policy Statement* Released October 1994.

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Telecommunications Policy

Bureau of Transport and Communications Economics. (1995). *Telecommunications in Australia.* Report released February 1995.

Senate Economics References Committee. (1995). *Connecting You Now - Telecommunications Developments Towards the Year 2000.* Report released November 1995.

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WHEN THE BOOK? WHEN THE NET?

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Sometimes the BOOK is better than the NET!

Perhaps it goes without saying. But bandwagons have a way of distorting reality and swaying behaviour. All of a sudden the world is rushing willy-nilly onto the Information Highway in a dash to explore just about any topic and any question. It's as if they believe the NET can illuminate any subject.

Well, it's time we set the record straight and point out the weaknesses of conducting research on the NET. When is a BOOK the best place to turn? When is the NET the best source? When will a CD-ROM encyclopedia or periodical collection outperform them both?

1. WHEN IT COMES TO HISTORY AND COMPLEX ISSUES...

A student recently asked me where was the best place to learn about the Cuban Missile Crisis on the Internet. I dashed onto the Net full of confidence, having recently located the VIRTUAL LIBRARY for HISTORY. I thought I had a wonderful list of sources which would return hundreds of valuable documents. Not so! More than an hour later I was still wandering around with almost no information to show for my efforts.

I stepped off the highway and pondered my failure. Why was there so little about the Cuban Missile Crisis on the Net?

I began with profit as a hypothesis. People who study something for thousands of hours, collecting and reviewing hundreds of documents, usually try to sell their work to a publisher. The publisher then tries to make money by selling a book. I could find references to such books on the Net, but the books themselves were still in hard copy formats. No one had rushed to place free electronic versions on the Net.

Carefully synthesized information is still a valuable commodity in our society. One pays for such information, either by purchasing a book or subscribing to pay-per-view data services such as DIALOG. It reminded me of my first glimpse at Internet versions of magazines offered in the Electronic News Stand. I rushed to open a few of these free documents and found they were little more than Tables of Contents or teaser introductions to lead articles. If you want the real stuff, you subscribe.

The highest quality free information on the NET is generally the governmentally funded studies which have been conducted by university scholars and scientists who have filed them for global sharing on their gopher sites.

Historical work on issues like the Cuban Missile Crisis is in generally short supply.

A VERONICA search across gopher sites turned up a dozen documents, the majority of which were either email messages between amateur historians debating the crisis or were documents which refused to open because their file server was not operating:

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Search GopherSpace by Title word(s) (via PSINet): Cuban Missile Crisis

1. Cuban Missile Crisis (fwd).
2. Re: Cuban Missile Crisis .
3. Re: Cuban Missile Crisis (fwd).
4. Kruschev/Cuban Missile Crisis.
5. Cuban Missile Crisis.
6. Re: Cuban Missile Crisis .
7. Re: Cuban Missile Crisis (fwd).
8. RE: Cuban Missile Crisis (fwd).
9. Cuban Missile Crisis.
10. CUBAN_MISSILE_CRISIS.
11. COLD WAR: CUBAN MISSILE CRISIS
12. Cold War: Cuban Missile Crisis/
13. The brink : Cuban missile crisis, 1962 - by David

I did find one valuable resource, a research question filed for students of a college course in Cold War International Relations which pointed students toward, of all things, books:

ESSAY FOR:

Rachael Bradley TR HIS 1992
Beth Hartland TR HIS 1992
David Morgan AI HIS 1991
Paul Owen AI HIS 1992 Andrew Robinson CS HIS 1992

TITLE: To What extent did the Kennedy Administration's management of relations with Castro's Cuba and the USSR, leading up to the Cuban Missile Crisis, illustrate its general practice in the conduct of "Cold War" confrontations? READ: 145 [Divine]; 167 [Heath], 169 [Miroff], 173 [Schlesinger]; 287 [Ambrose], 299[Gardner], 300[Garrison & Gleason], 301 [Graebner], 311 [LaFeber], 314 [McCormick], 316 [Paterson], 318 [Schulzinger] for background--i.e. there are plenty of good general books. Plus--or just use some of these mongraphs, if you prefer:

Graham T. ALLISON 327.73092 Essence of Decision: Explaining the Cuban Missile Crisis (1971)
Jules R. BENJAMIN 327.73097 The United States & the Origins of the Cuban Revolution (1990)
Michael R. BESCHLOSS 327.73094 The Crisis Years: Kennedy & Khrushchev, 1960-1963 (1991)

(The actual list was much longer).

I also encountered a few good documents, such as a letter from Kruschev to Kennedy. It seems that the Net provides some excellent archival information at times.

All in all, the pickings were very slim. I began to form a generalization that the Net was better for currently breaking issues than it was for older questions which had been the focus of serious scholarly thought.

Authors in the 1990s will most often seek publication of their best work in hard copy journals and magazines. It is rare that they would start by posting them to the Net, especially since publishers are reluctant to print such electronically compromised articles.

The best thinking on topics such as the Cuban Missile Crisis is probably still captive of the old technology. Until someone purchases the electronic rights to those articles and books with an eye toward making them available on the Net, we may still find the book the best place to start our inquiry regarding certain questions.

2. BOOKS PROVIDE SYNTHESIZED INFORMATION...

Because most of us grew up with hard copy books serving a central role for research we conducted from high school, most of us probably haven't stopped to think very long about their advantages over the kind of material available on the Internet.

A carefully crafted book on a complex non-fiction question is often the result of someone spending 18 months carefully collecting and then culling thousands of documents in order to distil all that information down into a relatively compact parcel we call a book.

Books save us a whole lot of trouble -- which is both a blessing and a curse -- as the selection and culling process can be a powerful aid to bias. If we want to evaluate Kennedy's leadership, we can consult half a dozen books, find the authors' opinions, weigh their evidence and build our own case.

If we tried to conduct the same inquiry from scratch, it might take us 18 months to sort through the Info-Glut. Good books have done the sorting for us. If the thinking of the author is sound, books take us quickly to the insight level and they also provide enough data to show the foundations of the author's thesis.

- Researching on the Internet, in contrast, usually requires us to start with raw ingredients. If we hope to reach the insight level, we must first cull through the Info-Glut, sorting and sifting our way toward meaning.

3. ELECTRONIC BOOKS WOULD BE EVEN BETTER...

This is in no way meant to suggest that hard copy books need maintain their dominant role. If we could convince the publishers of books and journals to make their files available on the Information Highway without exorbitant fees, the searching capabilities of new software might make such electronic books superior to the hard copy versions.

Imagine being able to scan quickly a dozen books on Kennedy's decision, locating the crucial passages and sections in mere moments. Electronic text can be swiftly downloaded and collected in formats which make later consideration and review much easier than the antiquated note cards we grew up using.

For those who have used electronic books on the Internet (Project Gutenberg, for example), the power of such formats is evident. We should all work to expand the texts available throughout the gopher sites of the world so that history, social science and complex issues can be explored via the Internet.

4. CD-ROM MAY ALSO BEAT OUT THE INTERNET...

EBSCO's Full Text Elite contains thousands of contemporary magazine articles, some of which include full text. A search for Cuban Missile Crisis calls up 73 documents containing those words. Quite an improvement over my search with Veronica.

Until one begins to survey the 73 articles and discovers that almost every one of them contains nothing more than an oblique reference to the Cuban Missile Crisis. Most compare Clinton's handling of some foreign policy crisis to Kennedy's handling of the Cuban Missile Crisis. The two or three most promising lead the reader to a review of a BOOK! A few short paragraphs leave us with little insight and fewer facts. Buy the book!

It seems that CDROM collections of current periodicals are not much more helpful than the Internet when it comes to study of events which took place 34 years ago.

CONCLUSION

We keep coming back to the book. For certain questions it remains an excellent piece of information technology. In many cases, the carefully distilled information contained in a book may provide superior access to insight. Library media specialists and classroom teachers whose students are lucky enough to have broad scale access to the Internet need to carefully consider when the resources available on the Internet are worth mining. Chances are, given the current nature of the information available on the highway, time may often be spent more efficiently and productively using other information resources.

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DEATH OF THE BOOK?

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THE PRESENT

A lover of books whose working life has been devoted to encouraging children to read them, I meet teachers, parents, publishers, writers and artists - all accomplished and creative - committed to the same cause. I see many well-stocked library shelves and prosperous bookshops. Children and adults alike clearly love their books and welcome the opportunity to meet those who have created them, or those with whom they can share their literary enthusiasm. Books are widely reviewed in print, on radio and on television. Book-related information such as prizes for literature, instances of fraud, and 'dangerous' publications sparking censorship debates rate as 'news'. It would be easy, but foolish, to make a comfortable room of this present, with no windows into the lives of the majority of adults and children, who do not see books as something they couldn't live properly without.

The book - 'a written or printed work with pages bound along one side' - is clearly no longer the best format for some of its customary contents and functions. 'Choose Your Own Adventure' stories are much more fun as computer games; statistics are much more useful as computerised databases programmed so that you can manipulate them for meaningful display; the latest field reports on an endangered species are much more immediately accessible via an appropriate Web site; and information on the current lifestyles of people far away may be best gained directly through email communication with them. Cinema and television are effective media for telling stories, showing places, setting moods and exploring characters. It must be remembered that many people read books only because they needed the information, or wanted the entertainment, and could not get it any other way. The survival of the book when access to electronic sources is easy and cheap, once people of the pre-television generations have died out, is therefore problematic.

The Complementarity of Books and Hypermedia in Learning Now, while teacher librarians are becoming ever more involved in providing interactive multimedia resources and students are accessing the Internet at home and school, is the time to consider what might be lost with the death of the book. Sven Birkerts' essays *The Gutenberg Elegies: the Fate of Reading in an Electronic Age* (1994) reward close, reflective reading both for the insights therein and for that pleasure of prolonged interaction with a fine mind which only reading a book can give. He suggests that 'the more complex and sophisticated our systems of lateral access, the more we sacrifice in the way of depth'. In an evolutionary process, students are developing 'an expanded neural capacity, an ability to accommodate a broad range of stimuli simultaneously', at the cost of 'a reduced attention span and a general impatience with sustained inquiry' (1994:26-7). The survival of the book depends on students' experience of reading good books slowly and seriously as a vital part of their humanistic education and their consequent appreciation of the medium.

Because books are univocal, linear and author-dominated, they offer skilled readers a complementary way of knowing: 'a chance to subject the anarchic subjectivity to another's disciplined imagination, a chance to be taken in unsuspected directions under the guidance of some singular sensibility' (Birkerts 1994:164). Whether readers embrace or reject what they understand to be an author's message, a good book provides a model for transforming data and information into a unified (though perhaps temporary), sustained, meaningful, personal synthesis. This will become even more important as use of the Internet increases, because, though the process of reading hypertext enables students to gain a sense of the interrelatedness of all information, moving across its multi-dimensional webs can be as complex and puzzling as the chaos of life itself.

FILM AND VIDEO: THE BOOK AS SOURCE

Many films are not derived from particular books. However, when Steven Spielberg accepted his Thalberg award for continued excellence in film production at the 1986 Academy Awards ceremony, he emphasised the role of writing in movie-making:

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> We are, first and foremost, storytellers...In our romance with technology and our excitement exploring all the possibilities of film and video, we have partially lost something we have to reclaim... It's time to renew our romance with the written word.

Spielberg understands the contribution writers and readers who love the subtleties and richness of language make to the pool of possibilities for stories and imaginative response available to authors in all other media. Reading books can stimulate thought and feeling in such a way that 'times and spaces open, different from measurable time and space' (Calvino 1992:156). These openings allow creators of texts in other media room for their interpretations or act as windows into new worlds and different ways of telling about them. This potential does not guarantee the continuing publication of new texts in book format though, because there are so many good books already available.

THE LIFE OF THE BOOK

It is difficult to spark a new romance with the long-established written word, however, when students can discover so much via electronic media, the capacity of which is expanding before their eyes. But there are some indicators of the life of the book to comfort book-lovers and to point out to students at teachable moments.

- The lasting qualities of 'classic' books, which are in a format that can be re-interpreted in a range of media for new generations. *Pride and Prejudice* springs to mind. Could we have produced the current television series solely from the early film?
- Information stored for pragmatic, ephemeral reasons leaves big gaps which later generations often wish to fill. Old books -- frequently fictional -- can provide missing details and a sense of what is was like to live then. The capacity of resources in other media to fulfil this function has yet to be proved. Read *Andra* (Louise Lawrence) and *A Canticle for Liebowitz* (Walter Miller) to explore this idea imaginatively. We do not know which things, unimportant to us, may be required in future.
- A book is produced in such a way that you know that the author/s have agreed to the contents in that format. This is very difficult with other media, which can be manipulated endlessly until you are uncertain about correct attribution.
- Books are manifesting innovations in style inspired by developments in other media and the skills readers have developed through interactions with these media. Margaret Meek (1991) points out that, as a result of television, children are better at inferring character and action from dialogue than they used to be. Many authors of recent children's fiction use more dialogue, less explicit interpretation of the action, and fewer descriptive passages. The ways in which films can let the viewer see and hear from the point of view of a character have also carried over into some of the writing (Caswell 1994).
- Young writers are emerging, writing books for adults and children. Tim Winton was only nineteen when his first book was published, and has continued as a professional writer; Sonya Hartnett, at twenty-eight the author of four books read by teenagers and adults, studied other media but has chosen to write books.
- The artistic quality of picture books for children and graphic novels for adults is much higher than anything on computer screens. The aesthetic qualities, portability and independence of plugs and bugs still make a well-produced book appealing.
- As computers become associated more than ever with work, the book may become more attractive as a medium associated with leisure. This may prolong the life of some kinds of books and inspire appropriate innovations.

THE FUTURE OF THE BOOK

Already, book-buying by people under thirty has declined, and publishers are diversifying their wares into audio and CDROM formats. As the irritating aspects of current technology are smoothed away, more people will abandon books for some or all of their information needs than are now prepared to do so. Only the committed, serious book readers will remain, and it will become

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increasingly difficult to get new books in literature and the humanities published for this decreasing potential readership. Professional writers will have to turn to other media.

As more children learn to 'read' on computer screens at home, the linearity of print in books and the kind of attention necessary for understanding will seem increasingly difficult for them. Only the most engaging children's books will be used successfully for the teaching of reading. The bottom will fall right out of the market for informational books for children over seven.

The 'great books' which are studied at schools and universities are already available in electronic formats, with hypertext links which enable students to explore every imaginable aspect without moving from their chairs. This trend will continue. Commercial and academic considerations will determine a small number of authors and books for this exhaustive treatment, while many excellent books which are not set for study may disappear from libraries as the last copies wear out.

NECESSARY AND SUFFICIENT CONDITIONS FOR THE SURVIVAL OF THE BOOK

Archivists will see that books exist as artefacts, but their role as an organic part of life and learning in the future depends on whether a critical mass of people (now young or unborn) appreciate them. As libraries must invest hugely in electronic media, it is inevitable that many book collections will deteriorate in currency and quality. The downward spiral of sales, publication, and student satisfaction with the books they consult will be difficult to prevent. In this climate, it will be harder than ever to facilitate a range of book-related experiences which turn more than a small minority of students on to the medium.

There is an 'interactivity' about reading books which has nothing to do with pushing buttons or putting oneself in every scene or story, and a 'liberation' which has nothing to do with one's power to change a story, and everything to do with paying passionate attention to, and reflecting on, someone else's story. These things can be learned only by experience, and the way in which society is now developing is not conducive to such experience. Schools already have too much to do: it is hard to see how they can rise to the challenge of equipping children to use interactive multi-media technologies intelligently and, at the same time, inducting them into the deep and serious reading of books.

The writer of books may 'take a place beside the scrimshaw artist in the museum of hallowed but ultimately useless crafts' in the future unless a higher proportion of students than ever before leave school knowing from their reading of books that this process 'offers an essential experience available nowhere else... the deeper picture of things' (Birkerts 1994: 209). Unless current developments in mainstream education and society change direction, the death of the book is a depressingly real possibility.

To end on a positive note, reading and writing are more important than ever. Skills in some kinds of reading and writing will, I feel sure, increase as a result of electronic information retrieval and communication. While these skills exist, so does the possibility of the resurgence of the book.

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